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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER

MAHMOUDI, HASSAN

ART UNIT	PAPER NUMBER
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2165

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/682,214	Applicant(s) SINGMAN-ASTE ET AL.	
	Examiner Tony Mahmoudi	Art Unit 2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/14/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the **second paragraph** of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-6, 13-15, and 22-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The above claims recite the limitation, “instances of substantially identical value”. The term “identical” means an exact match or an absolutely the same value; “exactly equal and alike”, while the term “substantial” signifies “considerable amount”; “degree or extent” of, in this case, equality in value. Recitation of “substantially identical value” renders the claim indefinite because the term “substantial” conflicts with the term “identical” for value comparisons. In contrast, “substantially similar value” or “substantially close in value” would be considered distinct, provided that the instant application provides teachings for measuring and for a degree of measurement for considering the “closeness” or “similarity” level of the “one or more instances of value”, as recited in the above claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Independent claims 1, 10, 19, and 28 (and their dependent claims), are not statutory because they merely recite a number of computing steps without producing any tangible result. The “automatic determination” of the modal value is not considered tangible result because the end-result is not stored or presented/outputted on a tangible medium (e.g. displayed to a user or printed.)

Independent claim 10 (and its dependent claims) are further rejected under 35 U.S.C. 101 because they recite “software”, which is non-statutory subject matter. In contrast, a computer-readable medium comprising a computer program, software, or instructions, is considered an element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program’s functionality to be realized, and therefore, is statutory.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 10-12, 19-21, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Grace et al (U.S. Publication No. 2002/0049570 A1, hereinafter referred to as Grace.)

As to claim 1, Grace teaches a method for automatically determining at least one modal value (see paragraphs 1, 151, and 153) of non-numeric data (see paragraphs 49-52, and see paragraph 58) comprises:

selecting a data subset from a dataset, the data subset comprising at least a portion of the dataset (see paragraphs 84, 92, 95, and 160) and including at least one non-numeric value (see paragraphs 49-52, and see paragraph 58); and

automatically determining at least one modal value based on the selected data subset (see paragraph 135, where “subset of overlapping data is “automatically” produced; and see paragraphs 151, and 153, where “determining mode value” is taught.)

As to claims 2, 11 and 20, Grace teaches wherein selecting the data subset from the dataset comprises querying a database (see paragraphs 14-15, where “indexing” the data sets provides for database queries; and see paragraph 59.)

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As to claims 3, 12, and 21, **Grace** teaches each value of the data subset comprising one of the following data types:

float; integer (see paragraph 121); currency; date; decimal; or string (see paragraph 50.)

As to claim 10, **Grace** teaches software (see figure 14; see paragraph 143; and see paragraph 204. The applicant is also referred to the rejections made under 35 U.S.C. 101 for this claim [and its dependent claims], in paragraphs 5-6 of this Office Action) for automatically determining at least one modal value (see paragraphs 1, 151, and 153) of non-numeric data (see paragraphs 49-52, and see paragraph 58) operable to:

select a data subset from a dataset, the data subset comprising at least a portion of the dataset (see paragraphs 84, 92, 95, and 160) and including at least one non-numeric value (see paragraphs 49-52, and see paragraph 58); and

automatically determine at least one modal value based on the selected data subset (see paragraph 135, where “subset of overlapping data is “automatically” produced; and see paragraphs 151, and 153, where “determining mode value” is taught.)

As to claim 19, **Grace** teaches system (see paragraph 49) for automatically determining at least one modal value (see paragraphs 1, 151, and 153) of non-numeric data (see paragraphs 49-52, and see paragraph 58) comprises:

memory operable to store a data set (see paragraphs 59 and 141), the data set comprising a plurality of data objects and each data object comprising a data type and a value (see paragraphs 14-15); and

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one or more processors (see figure 1; and see paragraphs 16, 21, and 35) operable to:

select a data subset from the dataset, the data subset comprising at least a portion of the plurality of data objects (see paragraphs 84, 92, 95, and 160) and including at least one non-numeric data object (see paragraphs 49-52, and see paragraph 58); and

automatically determine at least one modal value based on the selected data subset (see paragraph 135, where “subset of overlapping data is “automatically” produced; and see paragraphs 151, and 153, where “determining mode value” is taught.)

As to claim 28, Grace teaches a system (see paragraph 49) for automatically determining at least one modal value (see paragraphs 1, 151, and 153) of non-numeric data (see paragraphs 49-52, and see paragraph 58) comprises:

means for selecting a data subset from a dataset, the data subset comprising at least a portion of the dataset (see paragraphs 84, 92, 95, and 160) and including at least one non-numeric value (see paragraphs 49-52, and see paragraph 58); and

means for automatically determining at least one modal value based on the selected data subset (see paragraph 135, where “subset of overlapping data is “automatically” produced; and see paragraphs 151, and 153, where “determining mode value” is taught.)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-9, 13-18, and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grace in view of Mahoney (U.S. Patent No. 5,280,547.)

As to claims 4, 13, and 22, Grace teaches wherein determining at least one modal value based on the selected data subset comprises:

sorting the selected data subset by value (see paragraphs 141 and 143);

processing the sorted data subset to identify one or more modal value (see paragraph 84, where “modal value” is read on “multiple overlapping subsets of data points are selected from the first set of data points”; and see paragraph 144, where data subsets are processed”); and

determining at least one modal value based, at least in part, on the one or more modal value (see paragraphs 151, and 153, where “determining mode value” is taught.)

Grace does not teach “modal groups, each modal group comprising one or more instances of a substantially identical value.”

Mahoney teaches dense aggregative hierarchical techniques for data analysis (see column 3, lines 24-37), in which he teaches “modal groups, each modal group comprising one or more instances of a substantially identical value” (see column 33, lines 17-46, where “modal groups” is read on multiple “mode field values”, and where “one or more instances of a substantially identical value” is read on the mode values being “sufficiently similar” [the applicant is kindly directed to the rejection made under the second paragraph of 35 U.S.C.

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112, regarding the “indefinite” nature of the term “substantially identical”, as used in the instant application (sections 3-4 of this Office Action)].)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Grace by the teaching of Mahoney, because including “modal groups, each modal group comprising one or more instances of a substantially identical value”, would enable the system to identify data sets with modes of nearly the same values, wherein subsets of data which have substantially the same modal values (related data) can be grouped together so that they can later be retrieved together. Mahoney uses this technique to “analyze a body of data items to obtain information about attributes of groups of the data items”, as taught in column 2, lines 20-29.

As to claims 5, 14, and 23, Grace as modified, still does not teach determining a modal count for each modal group, each modal count comprising the number of instances of the substantially identical value in the associated modal group.

Mahoney further teaches determining a modal count for each modal group (see column 8, lines 4-24), each modal count comprising the number of instances of the substantially identical value in the associated modal group (see column 33, lines 17-46.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Grace as modified, by the further teaching of Mahoney, because determining a modal count for each modal group, would enable the system to establish a rating/ranking mechanism to identify the mode fields with the highest number of occurrences (total number of sufficiently similar mode values) as well as a

plurality of modes with different values. Mahoney teaches a technique “implemented by producing a hierarchy of prominent values in which each prominent value is selected from a set of prominent values at the next lower level of the hierarchy. Each prominent value at the next lower level has a count roughly indicating its frequency up to that level in the hierarchy. The prominent value at the higher level is the more frequent of the prominent values at the next lower level, as indicated by the counts” (see column 8, lines 12-24.)

As to claims 6, 15, and 24, Grace as modified, teaches wherein determining at least one modal value based, at least in part, on the one or more modal groups (see Grace, paragraphs 151, and 153, where “determining mode value” is taught) comprises:

determining a highest one or more modal counts (see Mahoney, column 33, lines 32-35);
selecting the substantially identical value from each modal group associated with the highest modal count; and assigning each selected substantially identical value to one modal value (see Mahoney, column 33, lines 35-37, where “selecting highest mode count” is read on “if P2 count field is greater”, and where “assigning the selected identical value” is read on “changes the Mode and Count fields to have the values in P2's Mode and Count fields”).)

As to claims 7, 16, and 25, Grace as modified, teaches in response at least in part to each modal count being equal to one, assigning a null value to one modal value (see Mahoney, column 21, lines 11-30, where “assigning a null value” is read on “performing a null or “idle” operation”; also see column 31, lines 60-65.)

As to claims 8, 17, and 26, Grace as modified, teaches one of the modal groups comprising at least one lowercase string value and at least one mixed-case string value (see Mahoney, column 25, lines 11-51, where “modal groups” is read on “tl, tr, bl and br quadrants”, and the “lower-case string value and mixed-case string value” is read on “edge-pair strings”, as depicted in table I.)

As to claims 9, 18, and 27, Grace does not teach wherein determining at least one modal value based on the selected data subset comprises:

- selecting one data object from the data subset;

- comparing a value of the data object to a plurality of stored values in a lookup table, each stored value being associated with one modal count;

- in response, at least in part, to the value of the data object being located in the plurality of stored values, adding one to the associated modal count;

- selecting the highest one or more modal counts from the lookup table; and

- assigning each stored value associated with one of the highest modal counts to one modal value.

However, Mahoney further teaches:

- selecting one data object from the data subset (see column 12, lines 40-45; and see column 27, line 68 through column 28, line 2);

- comparing a value of the data object to a plurality of stored values in a lookup table, each stored value being associated with one modal count (see column 32, lines 13-31; see column 25, line 11 through column 26, line 30);

in response, at least in part, to the value of the data object being located in the plurality of stored values, adding one to the associated modal count (see column 33, lines 29-32, where “adding one to the count” is read on “count field equals to the sum of its previous value and P2’s count field”);

selecting the highest one or more modal counts from the lookup table (see column 29, lines 34-35, where “highest modal count” is read on “determining which mode field has a larger count”); and

assigning each stored value associated with one of the highest modal counts to one modal value (see column 29, lines 35-37, where, “assigning highest modal count to one modal value” is read on, “if P2's Count field is greater, the step in Box 886 changes the Mode and Count fields to have the values in P2's Mode and Count fields.”)

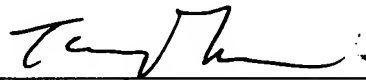
Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Grace by the teachings of Mahoney, because doing so, as taught by Mahoney (column 8, lines 4-24), would provide “a technique for rapidly obtaining general information about a body of data by hierarchically processing local information, which can be implemented by producing a hierarchy of prominent values in which each prominent value is selected from a set of prominent values at the next lower level of the hierarchy. Each prominent value at the next lower level has a count roughly indicating its frequency up to that level in the hierarchy. The prominent value at the higher level is the more frequent of the prominent values at the next lower level, as indicated by the counts.”

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Conclusion

9. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Tony Mahmoudi whose telephone number is (571) 272-4078. The examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached at (571) 272-4146.



Tony Mahmoudi
Patent Examiner
Art Unit 2165
Tel. (571) 272-4078
Fax (571) 273-4078

tony.mahmoudi@uspto.gov